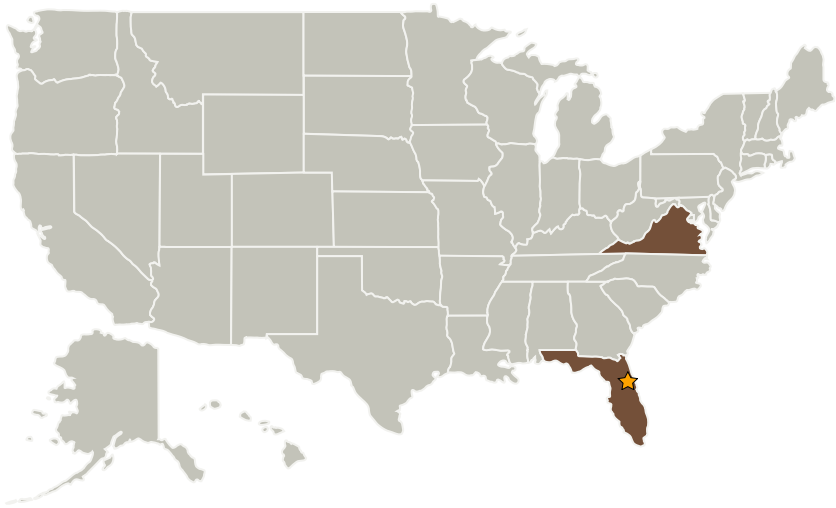
# Self Healing Ultrahydrophobic Coatings for Corrosion Protection, Phase I

Completed Technology Project (2008 - 2008)

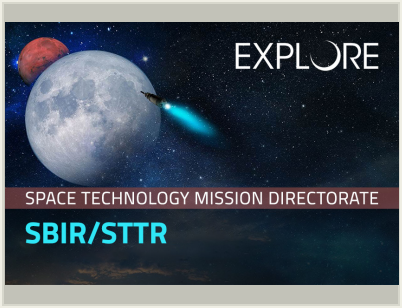
## Project Introduction

The total annual corrosion related costs in the US has been estimated at greater than $300 billion. Much of these costs are associated with scraping and repainting of metals such as steel structures in the NASA launch platform and related support equipment. Because of the staggering costs stemming from corrosion of steel infrastructure, there is a tremendous need to develop intelligent coatings that can perform numerous functions above those historically demanded of coatings. Luna is addressing the need to enhance the service life of NASA vehicles and equipment through a multifunctional coating system. This research program will develop robust, inexpensive coatings that are i) ultrahydrophobic as a first line of defense to repel water absorption and ii) self healing to replenish coating integrity after damage to yield long term corrosion resistance. The technology developed on this program will decrease life cycle costs, reduce maintenance, and increase readiness by limiting equipment down-time.

## Primary U.S. Work Locations and Key Partners



| Organizations Performing Work | Role | Type | Location |
|---|---|---|---|
| ★Kennedy Space Center(KSC) | Lead Organization | NASA Center | Kennedy Space Center, Florida |
| Luna Innovations, Inc. | Supporting Organization | Industry | Roanoke, Virginia |




Self Healing Ultrahydrophobic Coatings for Corrosion Protection, Phase I

## Table of Contents



## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Center / Facility:**

Kennedy Space Center (KSC)

**Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

# Self Healing Ultrahydrophobic Coatings for Corrosion Protection, Phase I

Completed Technology Project (2008 - 2008)

| Primary U.S. Work Locations | |
|---|---|
| Florida | Virginia |

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

**Principal Investigator:**

Shi-hau Own

## Technology Areas

**Primary:**

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - TX12.1 Materials
    - TX12.1.5 Coatings